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Extraction of the S and P wave DD^* scattering phase shifts using twisted boundary conditions

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In this talk, we present a study on the behavior of DD^* scattering phase shifts at low energy using twisted boundary conditions. Although it is natural to use Lüscher's method for calculating the scattering phase shift between two hadrons from the energy spectra to address the properties of multi-quark states, it is not realistic to calculate a high-resolution scattering phase shift using only periodic boundary conditions due to the finiteness of the volume. On the other hand, twisted boundary conditions enable us to calculate the scattering phase shifts in detail. In our research, we apply this method to the DD^* system.

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